TM 11-6625-586-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR AND

ORGANIZATIONAL MAINTENANCE MANUAL

GENERATOR, SIGNAL AN/URM-103

This copy is a reprint which includes current pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY

OCTOBER 1968

WARNING

Be careful when working on the 115-volt/230-volt ac line connections. Remove power when making any inspections inside the equipment.

DON'T TAKE CHANCES!

Changes in force: C 1 and C 2

TM 11-6625-586-12
C 2

CHANGE
No. 2

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *13 November 1969*

Operator and Organizational Maintenance Manual
Including Repair Parts and Special Tools List
GENERATOR, SIGNAL AN/URM-103

TM 11-6625-586-12, 25 October 1968, is changed as follows:
1. Remove and insert pages as indicated in the page list below.

Remove	*Insert*
C-1 through C-3	C-1 through C-2

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:
To be distributed in accordance with DA Form 12-51, direct and general support maintenance requirements for the AN/GRC-125, AN/PRC-25, AN/VRC-12 and AN/VRC-30 radio sets.

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *16 September 1969*

Operator and Organizational Maintenance Manual Including Repair Parts and Special Tool Lists

GENERATOR, SIGNAL AN/URM-103

TM 11-6625-586-12, 25 October 1968, is changed as follows:
The title is changed as shown above.
Add appendix D after appendix C.
File this change sheet in the front of the manual for future reference.

By Order of the Secretary of the Army:

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General, United States Army,
Chief of Staff.

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TECHNICAL MANUAL
No. 11–6625–586–12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *25 October 1968*

Operator and Organizational Maintenance Manual

GENERATOR, SIGNAL AN/URM–103

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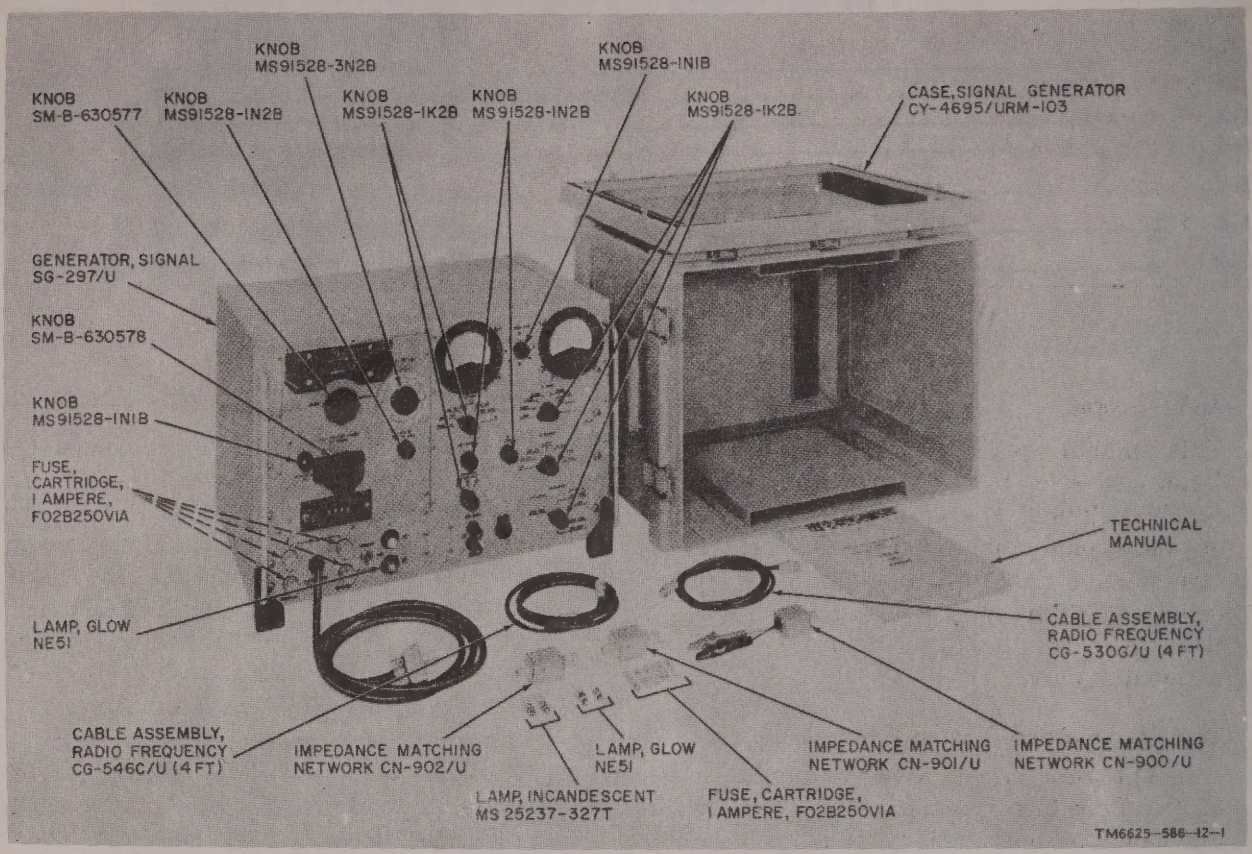

Figure 1-1. Generator, Signal AN/URM-103.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1–1. Scope

This manual describes Generator, Signal AN/URM–103 (fig. 1–1) and provides instructions for installation, operation, and operator and organizational maintenance. It includes instructions for operation under usual and unusual conditions and for replacement of parts which are available to the operator and organizational repairman.

1–2. Indexes of Publications

a. DA Pam 310–4. Refer to the latest issue of DA Pam 310–4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310–7. Refer to DA Pam 310–7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1–3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions given in TM 38–750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700–58 (Army), NAVSUP Pub 378 (Navy), AFR 71–4 (Air Force), and MCO P4030.29 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55–38 (Army), NAVSUP Pub 459 (Navy), AFM 75–34 (Air Force), and MOC P4610.19 (Marine Corps).

d. Report of Equipment Manual Improvements. Report of errors, omissions, and recommendations for improving this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AD, Fort Monmouth, N.J. 07703.

Section II. DESCRIPTION AND DATA

1–4. Purpose and Use

Generator, Signal AN/URM–103 is a portable signal generator capable of producing modulated and unmodulated radiofrequency (RF) signals in the 18– to 80–MegaHertz (MHz) range. Provision is also made for generation of intermediate-frequency (if.) alignment frequencies which are crystal-controlled. The AN/URM–103 is used for testing, aligning, and repairing frequency-modulation (fm) receivers operating within the 18– to 80–MHz frequency range.

1–5. Technical Characteristics

Frequency ranges:	
RF	18 to 80 MHz.
IF	4.300 MHz.
	5.600 MHz.
	5.625 MHz.
	5.650 MHz.
	10.00 MHz.
	11.50 MHz.

Type of output:
RF——Frequency-modulated and unmodulated.
IF——Unmodulated.
Internal modulation characteristics:
Frequencies available and deviation. 150 Hz ±1, 400 Hz ±5, and 1,000 Hz ±50.
External modulation characteristics:
Modulation frequency range. 0.1 to 30 kHz.
Input impedance——600 ohms.
RF output impedance with impedance-matching networks attaches ——50 ohms.
RF output voltage——0.05 uv to 1.0 volt.
IF output voltage——10 microvolts to 1.0 volt.
Line voltage input——115 volts ±10% or 230 volts ±10%, 50 to 400 Hz.
Weight—— 97 lb.

1–6. Components and Dimensions

(fig. 1–1)

The components of the AN/URM–103 are listed in the basic issue items list (appx B). Component dimensions are listed below.

Qty	Item	Dimensions (in.) Height	Depth	width	Unit weight (lb)
1	Generator, Signal SG–297/U.	13	13 1/4	18	68
1	Case, Signal Generator CY–4695//URM–103.	15 1/2	16 3/4	21 1/2	25
3	Impedance Matching Networks:				
	CN–901/U——	2.89	1 1/8	7/8	1/4
	CN–900/U——	2.646	1 1/8	7/8	1/4
	CN–902/U——	2.89	1 1/8	7/8	1/2
2	Cable assemblies:				
	Radio Frequency CG–530G/U (4 ft).			48	1
	Radio Frequency CG–546C/U (4 ft).			48	1
1	TM 11–6625–586–12				1

1–7. Description of Generator, Signal AN/URM–103

(fig. 1–1)

a. The AN/URM–103 consists of Generator, Signal SG–297/U housed in Case, Signal Generator CY–4695/URM–103. Generator, Signal SG–297/U (signal generator) consists of a panel-chassis assembly in an aluminum dust cover. The front panel has two handles to facilitate movement of the equipment and to protect the controls. All operating controls, power cable, and receptacles for interconnecting the signal generator are front-panel mounted.

b. Case, Signal Generator CY–4695/URM–103 (transit case) is a waterproof, aluminum case with storage compartments for Cable Assemblies, Radio Frequency CG–530G/U (4 ft) and CG–546C/U (4 ft), three impedance-matching networks, and the operator's manual. The transit case cover is held in place by 10 trunk-type latches. The transit case has two handles to facilitate moving the equipment. The signal generator can be operated while in the transit case by removing the latched cover.

c. Impedance Matching Networks CN–900/U, CN–901/U, and CN–902/U, when attached to the signal generator, provide the following input and output impedances. Radiofrequency Impedance Matching Networks CN–901/U (for low RF) and CN–902/U (for high RF) provide input impedances of 100 ohms and output impedances of 50 ohms; intermediate-frequency Impedance Matching Network CN–900/U provides an input impedance of 50 ohms and an output impedance of 25 ohms.

CHAPTER 2

INSTALLATION

2–1. Unpacking

a. Packaging Data. Generator, Signal AN/URM–103 is packed within a fiberboard carton. The carton is 26 5/8–inches by 20 5/8–inches by 23 inches. The volume of the carton is 7.7 cubic feet and the unit weight is 97 pounds.

b. Removing Contents. This equipment may be shipped in the fiberboard carton or in its own transit case. The instructions in (1), (2), and (3) below apply to equipment shipped in a fiberboard carton (fig. 2–1). No special unpacking procedures are required for equipment shipped in its own case.

(1) Place the packing case as close as possible to the operating position.

(2) Break the sealing strips from the top of the carton, along the centerline, and at the ends.

(3) Pry open the carton and remove the transit case.

2–2. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para 1–3).

b. See that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the basic issue items list (appx B). Report all discrepancies in accordance with TM 38–750. Shortage of a minor assembly or part that does not affect functioning of the equipment should not prevent use of the equipment.

c. If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear on the front panel near the nomenclature plate. If modified, see that any operational changes resulting from the modification have been entered in the equipment manual.

Note. Current MWO's applicable to the equipment are listed in DA Pam 310–7.

2–3. Installation of Components

The signal generator is shipped with fuses installed. See that the 1–ampere fuses are installed in the proper fuseholders.

Note. The signal generator is all transistorized; no tube location drawing is required.

2–4. Installation of Equipment

The signal generator should be placed on a firm support within a convenient distance (approximately 3 1/2 feet) from the equipment under test. A 115– or 230–volt, 50– to 400–cycle-per-second (Hz) source should be within 5 feet of the signal generator. No further installation procedures are required other than making the connections necessary for the various types of operation as given in chapter 3.

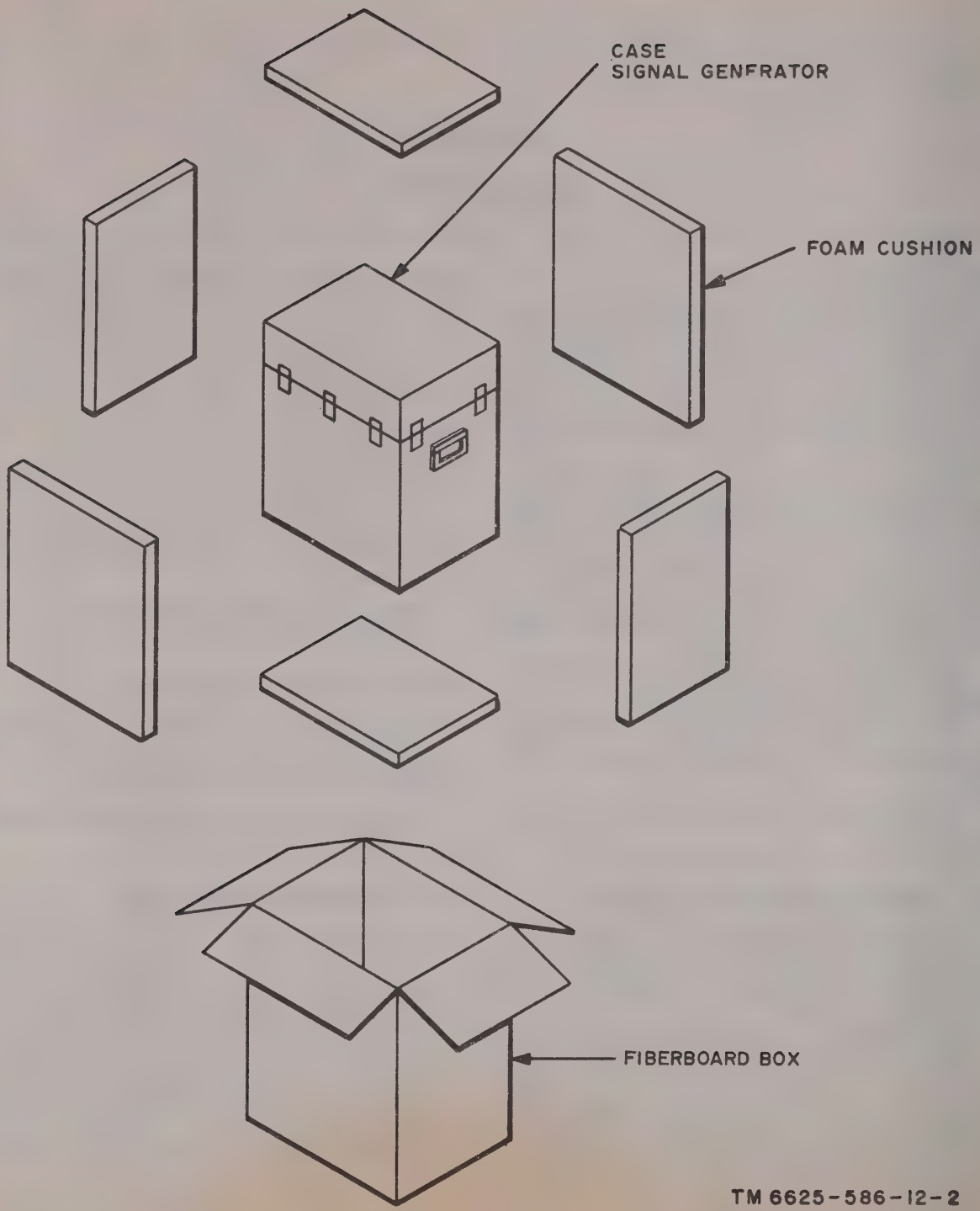

Figure 2–1. Packaging of Generator, Signal AN//URM–103.

CHAPTER 3

OPERATION

Section I. OPERATOR'S CONTROLS AND INDICATORS

Note. This section covers only items used by the operator; items used by maintenance personnel are covered in instructions for the appropriate maintenance category.

3–1. Damage from Improper Settings

Caution: **Improper setting of 115V-230V LINE VOLTAGE SELECTOR SWITCH S3 may cause damage to the equipment.**

Switch S3 (fig. 3–2) is behind the signal generator front panel, immediately behind the equipment placard. Remove the dust cover from the signal generator and properly position S3 for line voltage being used.

3–2. Generator, Signal SG–297/U, Operator's Controls and Indicators

(fig. 3–1 and 3–2)

Control	Function
OPERATE-OFF-STAND BY switch	Controls the ac line voltage to the signal generator. In the OPERATE position, the ac voltage is switched to the 115V-230V LINE VOLTAGE SELECTOR SWITCH. In the OFF position, the ac voltage does not reach the 115V-230V LINE VOLTAGE SELECTOR SWITCH. In the STAND BY position, the internal resistor-type heaters turn on to keep the signal generator warm and dry.
115V-230V LINE VOLTAGE SELECTOR SWITCH (internal).	Selects either 115- or 230-volt ac operation.
OPERATE indicator lamp	Glows white when the OPERATE-OFF-STAND BY switch is at OPERATE.
STAND BY indicator lamp	Glows yellow when the OPERATE-OFF-STAND BY switch is at STAND BY.
LO-HI RF SET TO LINE control	Adjusts and maintains a constant input level to the piston attenuator (internal) and the RF OUTPUT attenuator.
LO RF UV control	Adjusts the rf output signal between the limits of 0.05 to 10,000 uv, as read on the control dial, when the needle on the IF UV RF SET TO LINE meter is set to the redline.
IF UV control	Adjusts the if. level. The attenuator must be set to 1.0 on the RF SET TO LINE meter.
IF OUTPUT attenuator	Reduces the output voltage in 20-db steps from 1.0v to 10 uv. In the OFF position, no IF output can be taken from the signal generator.
EXT MOD terminals	These terminals are used to receive a modulation source other than the internal tones to modulat the RF oscillator. The frequency input should be between 100 and 30,000 Hz. The ground terminal is marked GND.

Control	Function
RF OUTPUT	Reduces the output voltage in 6-db steps from 500 kuv to 62.5 kuv in the HI position. Sets the output to LO.
BAND SWITCH	Selects the band containing the desired frequency range of 18 to 80 MHz. A dial mask allows just one band at a time to be visible. The switch has four positions (A through D).
RF TUNING control	Tunes the desired frequency in each band selected by the BAND SWITCH. Push for fast RF tuning.
DIAL INDICATOR SET	Mechanically sets the dial scale cursor so that it corresponds to the RF oscillator frequency.
DEVIATION RANGE KHZ switch	Selects one of three different frequency deviation ranges when an fm output signal is used. The three ranges are 0 to 10 kHz, 0 to 20 kHz, and 0 to 40 kHz.
DEVIATION control	Adjusts the amount of frequency deviation within each of the three deviation ranges. The DEVIATION control also controls the amplitude of the 100-Hz tone at the INT MOD OUT terminal when the FUNCTION switch is set to 1000 Hz.
DEVIATION KHZ meter	This meter has three ranges corresponding to the ranges available with settings of the DEVIATION RANGE switch.
FUNCTION switch	Determines the operation of the signal generator. It has the following 7 positions:

Position	Action
FREQ CAL	Activates the 18- to 80-MHz RF section and places the calibration circuits in operation to provide checkpoints for accurate calibration of the tuning dial.
MOD OFF	In this position, the signal generator is unmodulated and has the frequency range of 18 to 80 MHz.
150 HZ 400 HZ, or 1000 HZ	Provides an fm output modulated at 150-, 400-, or 1,000-Hz rate in the frequency range of 18 to 80 MHz.
EXT MOD	In this position, the internal modulating oscillator is disconnected and the RF oscillator can be modulated by an external source at the EXT MOD input terminals.
IF	Provides unmodulated crystal-controlled IF output signals at the IF output lead.

Control	Function
IF MHZ switch	Selects the proper crystals and tuning circuits to provide the following output frequencies: 4.3, 5.600, 5.625, 5.650, 10.00, and 11.50 MHz. Two spare positions are provided for future use.
IF UV RF SET TO LINE meter	Indicates that the proper RF voltage level is being fed into the RF attenuator. Also used to indicate the IF output voltage. (The scale numbers, when multiplied by the IF OUTPUT attenuator setting, are the IF output voltages.)
INT MOD OUT terminal	When the FUNCTION switch is set to 1000 HZ the 1,000-Hz tone is available at this terminal.
AUDIO VOL control	Adjusts the audio input level to the speaker.
ZERO SET control counter	Resets the counter to zero. Operates in five tuning positions.

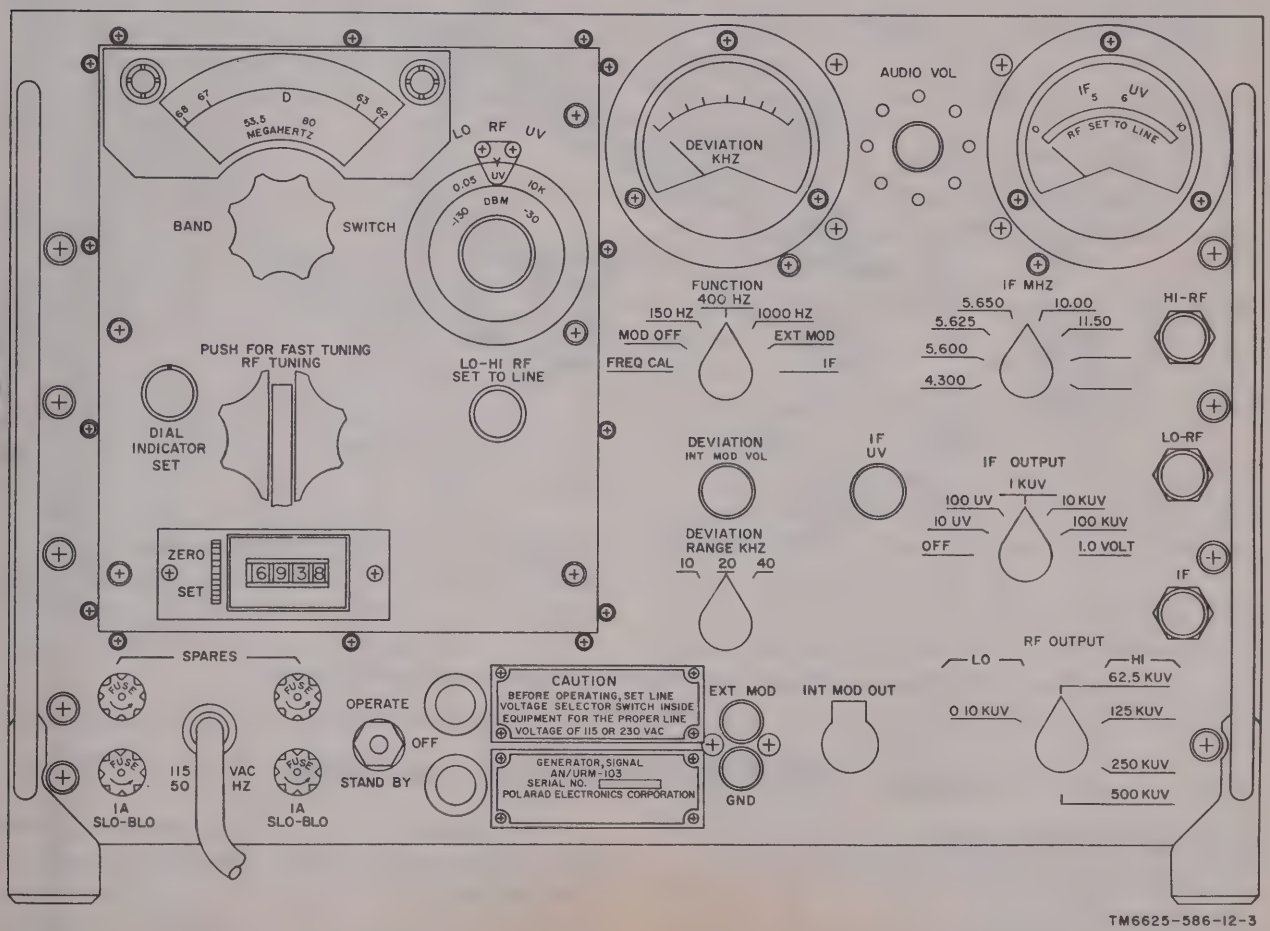

Figure 3-1. Generator, Signal SG-297/U, front panel operator's controls and indicators.

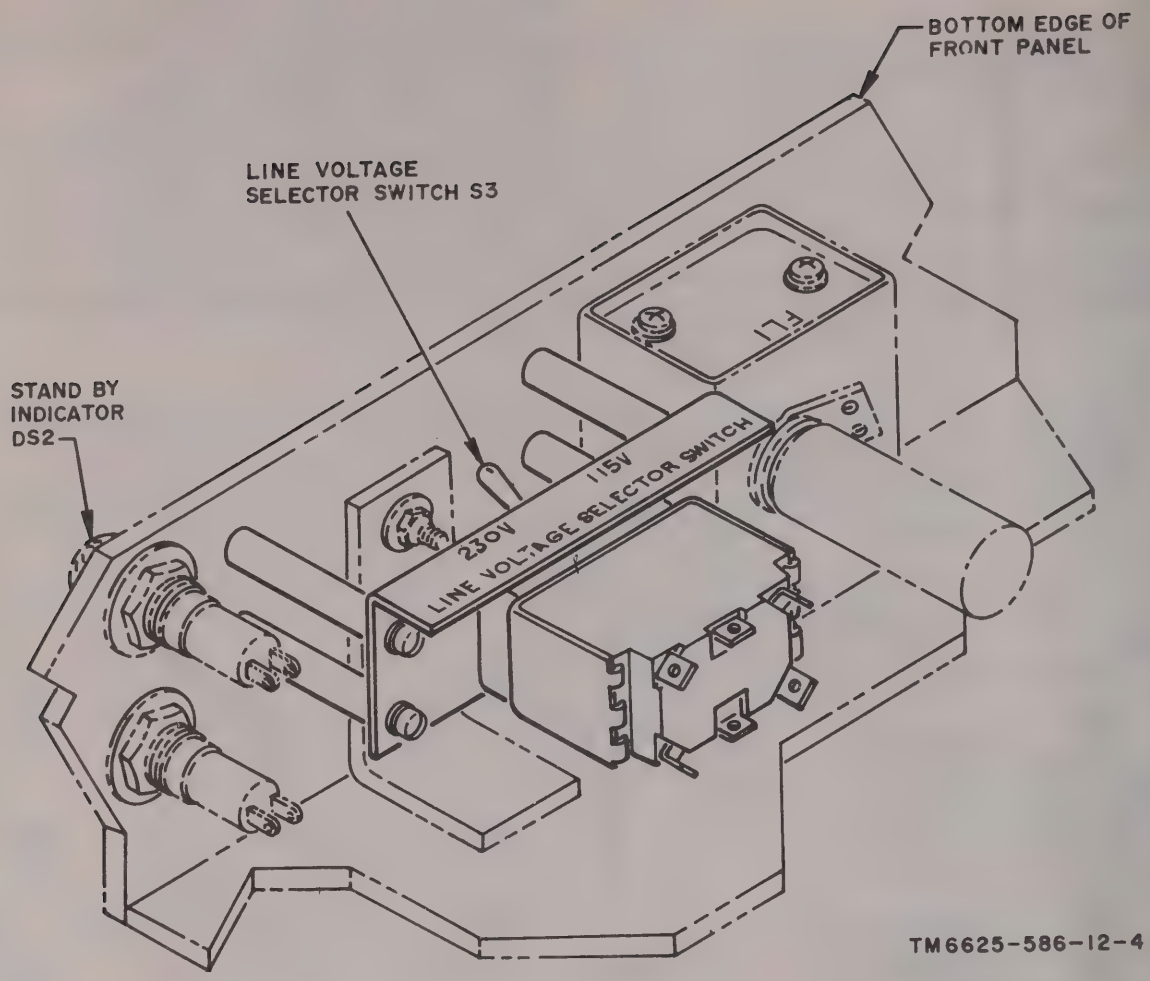

Figure 3–2. Generator, Signal SG–297/U view showing location of 115–230V line switch.

Section II. OPERATION UNDER USUAL CONDITIONS

3–3. Types of Operation

a. The signal generator may be operated as any of the following:

(1) Unmodulated RF signal generator.

(2) Internal frequency-modulated RF signal generator.

(3) External frequency-modulated RF signal generator.

(4) Crystal-controlled IF signal generator.

(5) Standby to maintain correct internal temperature while signal generator is not in actual use.

b. For any type of operation, excluding standby, perform the following procedures:

(1) Starting procedure (para 3–4).

(2) Frequency calibrating procedure (para 3–5). (Allow 1 hour minimum for warmup.)

(3) Procedure for desired operation (para 3–6).

(4) Stopping procedure (para 3–7).

3–4. Starting Procedure

Caution: **See that 115V-230V LINE VOLTAGE SELECTOR SWITCH S3, in back of the front panel, is properly positioned for the line voltage being used. Remove dust cover to obtain access to the switch.**

a. Preliminary. Before connecting the power cable, set the front-panel controls as follows:

Control	Position
OPERATE-OFF-STAND BY switch	OFF
FUNCTION selector switch	MOD OFF

Note. If an abnormal indication is obtained during the starting procedure, refer to the daily preventive maintenance checks and services chart (para 4–5) for corrective measures.

b. Starting.

(1) Connect the power cable to a suitable power source.

(2) Connect one end of one of the two RF cables to the desired output jack and the other end to the proper impedance-matching network.

(3) Connect the signal generator to the equipment under test by using the second RF cable for low-RF and high-RF operation, or the two alligator clips on the IF impedance-matching network for IF operation.

(4) Turn the OPERATE-OFF-STAND BY switch to OPERATE. The OPERATE indicator lamp should glow. Allow a 15–minute warmup period to minimize oscillator drift.

3–5. Frequency Calibrating Procedures

a. Calibration for RF.

(1) Turn the BAND SWITCH to the desired MHz range.

(2) Set the FUNCTION selector switch to FREQ CAL and adjust the RF tuning control until a beat note is heard at the desired frequencies. (Beat notes will be heard at all MHz points.)

(3) Adjust the DIAL INDICATOR SET control until the cursor is over the MHz marker.

b. Calibration for IF.

(1) Set the FUNCTION switch to IF.

(2) Set the IF UV control to indicate 1.0 on the RF SET TO LINE meter.

3–6. Operating Procedures

a. Unmodulated RF Signal Generator Operation.

(1) Set the FUNCTION selector switch to MOD OFF.

(2) Set the RF OUTPUT selector switch to the desired position.

(3) Adjust the BAND SWITCH to the desired MHz range.

(4) Adjust the RF TUNING control until the desired frequency appears under the cursor.

b. Internally Modulated Rf Signal Generator Operation.

(1) Set the FUNCTION switch to 150 HZ, 400 HZ, or 1000 HZ, as required.

(2) Adjust the BAND SWITCH to the desired MHz range.

(3) Adjust the RF TUNING control until the desired frequency appears under the cursor.

(4) Set the RF OUTPUT selector switch to the desired output level.

(5) Adjust the LO-HI RF SET TO LINE control until the needle on the IF UV RF SET TO LINE meter is directly over the red-line on the meter scale.

(6) Set the DEVIATION RANGE KHZ selector switch to the desired deviation range.

(7) Adjust the DEVIATION control until the DEVIATION KHZ meter indicates the desired deviation.

c. Externally Modulated Signal Generator Operation.

(1) Set the FUNCTION switch to EXT MOD.

(2) Connect an audio oscillator having a range of at least 100 Hz to 30 kHz, such as Generator Signal AN/URM–127.

(3) Turn on the audio oscillator and adjust the oscillator output to the desired modulating frequency.

(4) Adjust the BAND SWITCH to the desired MHz range.

(5) Adjust the RF TUNING control until the desired frequency appears under the cursor.

(6) Set the DEVIATION RANGE KHZ switch to the desired range.

(7) Adjust the DEVIATION control until the DEVIATION KHZ meter indicates the desired deviation.

d. Crystal-Controlled IF Signal Generator Operation.

(1) Set the FUNCTION selector switch to IF.

(2) Set the IF MHZ selector switch to the desired frequency.

(3) Set the IF OUTPUT selector switch to the desired output range.

(4) Adjust the IF UV control until the desired voltage is indicated on the IF UV RF SET TO LINE meter.

e. Standby Operation While Generator is not in Actual Use. Set the OPERATE-OFF-STAND BY switch to STAND BY.

3–7. Stopping Procedure

a. Set the OPERATE-OFF-STAND BY switch to OFF and remove the power cable from the power source.

b. Remove the external modulating generator (if used).

c. Disconnect the RF or IF cable and impedance-matching networks from the corresponding output connector and the equipment under test.

d. Disconnect the external generator cable from the EXT MOD jack (if used).

e. Store the signal generator, cables, and impedance-matching networks in the transit case.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

3–8. General

The operation of the signal generator may be difficult in regions where extreme cold, heat, humidity and moisture, and sandstorms prevail. Uniformity of characteristics over a wide temperature range is always difficult and can cause erratic outputs unless additional precautions are taken. Paragraphs 3–9, 3–10, and 3–11 outline procedures that minimize the effects of these unusual climatic conditions.

3–9. Operation in Arctic Climate

Subzero temperature and climatic conditions associated with cold weather affect the efficient operation of test equipment. Instructions and precautions for operation under such adverse conditions are given below.

a. Handle the signal generator carefully.

b. Keep equipment warm and dry and the signal generator in STAND BY operation.

c. If the equipment is removed from its case for service, move it into a heated inclosure where there is no danger of a cold draft when a door is opened. If the inclosure is so constructed that this condition is impossible, place a blanket or some barrier between the source of draft and equipment.

d. When equipment that has been exposed to the cold is brought into a warm room, condensation will form on the equipment until it reaches room temperature. When the equipment has reached room temperature, dry it thoroughly. Condensation also occurs when the equipment warms up during the day after exposure during a cold night.

3–10. Operation in Tropical Climates

When operated in tropical climates, test equipment may be installed in tents or huts. Ventilation is usually very poor, and the relative humidity causes condensation on the equipment whenever the temperature of the equipment becomes lower than the surrounding air. To minimize this condition, place lighted electric bulbs under the equipment or keep the OPERATE-OFF-STAND BY switch set to STAND BY.

3–11. Operation in Desert Climates

a. The main problem that arises with equipment operation in desert areas is the large

amount of sand, dust, or dirt that enters the moving parts of test equipment. The ideal preventive precaution is to house the equipment in a dustproof shelter. However, such a building is seldom available and would require air conditioning. The next best precaution is to make the building in which the equipment is located as dustproof as possible with available materials. Hang wet sacking over the windows and doors, cover the inside walls with heavy paper, and secure the side walls of tents with sand to prevent their flapping in the wind.

b. Never tie power cables, signal cables, or other wiring connections to either the inside or the outside of tents. Desert areas are subject to sudden wind squalls that may jerk the connections loose or break the lines.

c. Keep the equipment as free from dust as possible. Make frequent preventive maintenance checks.

d. A drastic fall in temperature at night often causes condensation on the equipment. To minimize condensation, cover the equipment with a tarpaulin or similar material.

CHAPTER 4

MAINTENANCE

4-1. Scope of Maintenance

The maintenance duties assigned to the operator and organizational repairman of the signal generator are listed below, together with reference to the paragraphs covering the specific maintenance functions.

a. Daily preventive maintenance checks and services (para 4-5).

b. Weekly preventive maintenance checks and services (para 4-6).

c. Monthly preventive maintenance checks and services (para 4-7).

d. Quarterly preventive maintenance checks and services (para 4-8).

e. Cleaning (para 4-9).

f. Touchup painting (para 4-10).

g. Troubleshooting (para 4-12).

h. Repairs and adjustments.

(1) Replacement of indicator lamps (para 4-13*a*).

(2) Replacement of ampere fuses (para 4-13*b*).

4-2. Special Tools and Equipment Required for Maintenance

a. Tools. The tools required for organizational maintenance are contained in Tool Kit, Electronic Equipment TK-100/G.

b. Materials. The materials required for organizational maintenance are contained in Tool Kit, Electronic Equipment TK-100/G except for the following:

(1) Bleached lint-free cheesecloth.

(2) Cleaning compound (FSN 7930-395-9542).

4-3. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, reduce downtime, and assure that the equipment is serviceable.

a. Systematic Care. The procedures given in paragraphs 4-4 through 4-9 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts (para 4-5 throubh 4-8) outline functions to be performed at specific intervals. These checks and services are to maintain Army electronic equipment in a combat serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, how to check, and the normal conditions; the *References* column lists the illustrations, paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by performing the corrective action indicated, higher category maintenance or repair is required. Records and reports of these checks and services must be made in accordance with the requirements set forth in TM 38-750.

4-4. Preventive Maintenance Checks and Service Periods

Preventive maintenance checks and services of Generator, Signal AN/URM-103 are required daily, weekly, monthly, and quarterly.

a. Paragraph 4-5 specifies checks and services that must be accomplished daily or under the special conditions listed below:

(1) When the equipment is installed initially.

(2) When the equipment is reinstalled after removal for any reason.

(3) At least once each week if the equipment is maintained in standby condition.

b. Paragraphs 4–6, 4–7, and 4–8 specify *additional* checks and services that must be performed on a weekly, monthly, and quarterly basis, respectively.

4–5. Daily Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Completeness	Check to see that the equipment is complete.	Appx B.
2	Exterior surfaces	Clean the exterior surfaces, including all meter glasses and indicator lenses. Check all meter glasses and indicator lenses for cracks.	Para. 4–9.
3	Connectors	Check the tightness of all connectors.	
4	Controls and indicators.	While making the operating checks, observe that the mechanical action of each control is smooth and free from external or internal binding, and that there is no excessive looseness. Also, check the meters for sticking or bent pointers.	
5	Preliminary	***Caution*: When equipment is installed initially, see that 115V–230V LINE VOLTAGE SELECTOR SWITCH S3, behind the front panel, is properly positioned for the line voltage being used. Remove dust cover to make this inspection. Before connecting the power cable, set the OPERATE-OFF-STAND BY switch to OFF.** FUNCTION selector switch to MOD OFF. ZERO SET counter to midscale position (approximately 4999).	Para. 3–4.
6	Power cable	Connect the power cable to the power source.	
7	OPERATE-OFF-STAND BY switch.	Set the OPERATE-OFF-STAND BY switch to OPERATE. Observe that the OPERATE indicator lamp glows.	Para. 4–13.
8	BAND SWITCH	Set the BAND SWITCH to band A.	Para. 4–13.
9	RF TUNING control	Adjust RF TUNING	
10	FUNCTION selector switch.	Set FUNCTION selector switch to FREQ CAL.	
11	DIAL INDICATOR SET control.	Check FREQ control for an audio zero beat.	
12	BAND SWITCH	Repeat sequence numbers 8 through 11 for bands B, C, and D.	

4–6. Organizational Weekly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Cables	Inspect external cables for cuts, cracked, or gouged jackets, fraying or kinks.	None.
2	Hardware	Inspect all exterior hardware on the signal generator case and cabinet. The case cover, carrying handle, latches, and all bolts and screws must be tight and not damaged.	
3	Preservation	Inspect equipment to determine that it is free of bare spots, rust, and corrosion. If these conditions exist, refer to a higher maintenance category for repair.	

4-7. Organizational Monthly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Cleanliness	Clean exterior surfaces of equipment	None.
2	Preservation	Inspect equipment to determine that it is free of bare spots, rust, and corrosion.	
3	External receptacles.	Inspect external receptacles for breakage and for firm seating.	
4	Meter glass	Inspect front panel glass window for damaged housing, broken glass, physical damage, dust or moisture.	
5	Cables	Inspect external cables for cuts, cracked or gouged jackets, fraying, or kinks.	
6	Hardware	Inspect all exterior hardware for looseness and damage. The spectrum analyzer cover, carrying handle, hinges, and all bolts and screws must be tight and not damaged.	

4-8. Organizational Quarterly Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Publications	Check to see that publications are complete, serviceable, and current.	DA Pam 310-4.
2	Modification work orders.	Check to see that all URGENT MWO's have been applied and that all NORMAL MWO's have been scheduled.	
3	Completeness	Check the equipment for completeness	Appendix B.

4-9. Cleaning

Inspect the exterior surfaces of signal generator to make certain that they are free of dirt, grease, and fungus.

a. Remove loose dirt with a clean soft cloth.

Warning: **Prolonged breathing of cleaning compound is dangerous. Make certain that adequate ventilation is provided. Cleaning compound is flammable; DO NOT use near a flame. Avoid contacts with the skin; wash off any that spills on your hands.**

b. Remove grease, fungus, and ground-in dirt from the case with a cloth dampened (not wet) with Cleaning Compound (FSN 7930-395-9542).

c. Remove dust or dirt from plugs and jacks with a brush.

Caution: **Do not press on the meter faces (glass) when cleaning, or the meters may become damaged.**

d. Clean the front panel, meter faces, and control knobs with a soft, clean cloth. If dirt is difficult to remove, dampen the cloth with water; use mild soap if necessary.

4-10. Touch up Painting Instructions

Remove rust and corrosion from metal surfaces by lightly sanding with fine sandpaper. Brush two thin coats of paint on the bare metal to prevent it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TB SIG 364.

4-11. General Troubleshooting Information

Troubleshooting the signal generator is based on the operational checks in the daily preventive maintenance checks and services chart. To troubleshoot the equipment, perform all the functions in the daily preventive maintenance checks and services chart (para 4-5) until an abnormal condition or result is observed. Perform the checks and corrective measures indicated in the troubleshooting chart (para 4-12). If the corrective measures indicated do not result in correction of the trouble, a higher category of maintenance is required.

4–12. Troubleshooting Chart

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
1	OPERATE or STAND BY lamp does not light.	*a.* Defective indicator lamp	*a.* Check indicator lamp. Replace if necessary (para. 4–13*a*).
		b. Defective fuse(s)	*b.* Check fuse(s). *Note.* Defective line fuse usually indicates some other trouble. If fuse replacement continues to result in blown fuse, higher category repair is required.
		c. Defective ac line cable	*c.* Refer to higher category for repair.

4–13. Repairs and Adjustments

a. Replacement of OPERATE and STAND BY Indicator Lamps.

(1) Turn the lens counterclockwise (ccw) and remove it from the lampholder.

(2) Press in on the defective lamp and turn it ccw to unlock it from the lampholder.

(3) Insert the new lamp into the lampholder. Press in on the lamp and turn it clockwise (cw) to lock it in place.

(4) Replace the lens or the lampholder and turn it cw to tighten.

b. Replacement of POWER 1-Ampere Fuses.

(1) Turn the fuseholder cap ccw and remove it from the body of the fuseholder.

(2) Remove the defective fuse from the fuseholder cap.

(3) Insert a new fuse in the fuseholder cap.

Note. Be sure the fuse is the same rating as the defective fuse.

(4) Replace the fuseholder cap in the fuseholder body and turn it cw.

CHAPTER 5

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT ENEMY USE

5–1. Disassembly of Equipment

Disassemble the signal generator as follows:

a. Remove the RF cables from the HI RF and LO RF output jacks.

b. Slide the signal generator into the transit case.

c. Place the RF cables, impedance-matching networks, and technical manual in the storage areas provided in the transit case.

d. Place the transit case cover in the proper position and secure it with the 10 trunk latches.

5–2. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends on the material available and the conditions under which the equipment is to be shipped or stored. Adapt the procedures outlined below wherever circumstances permit. The information concerning the original packaging (para 2–1) will also be helpful.

a. Material Requirements. The following materials are required for packaging the signal generator. For stock number of materials, refer to SB 38–100.

Material	Quantity
Foam, cushion	8 pieces
Gummed paper tape	8 ft.
Fiberboard shipping box	1

b. Box Size. The dimensions of the shipping box required for the signal generator are 26 5/8 inches by 20 5/8 inches by 23 inches. The volume is 7.7 cubic feet, and the unit weight is 97 pounds.

c. Shipping Container. Place the equipment within the cardboard box as shown in figure 2–1 and seal with gummed paper tape.

5–3. Authority for Demolition

The demolition procedures given in paragraph 5–4 will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished only upon order of the commander.

5–4. Methods of Destruction

Any or all of the methods of destruction given below may be used. The time available will be the major determining factor for the methods to be used when destruction of the equipment is undertaken. The tactical situation also will determine in what manner the destruction order will be carried out.

a. Smash. Use sledges, axes, hammers, crowbars, and any other heavy tools available to smash the signal generator.

(1) Remove the signal generator chassis from the case and use the heaviest tool on hand to smash the transformers, coils, meters, and tuning mechanisms.

(2) Use whatever tool is convenient to smash transistors, resistors, capacitors, and knobs.

b. Cut. Use axes, handaxes, machetes, and similar tools to cut cabling, cording, and wiring.

Warning: **Be extremely careful with explosives and incendiary devices. Use these items only when the need is urgent.**

c. Burning. Burn cords, wiring, and technical manuals. Use gasoline, oil, flamethrowers, and similar devices.

d. Explode. Use explosives to complete demolition or to cause maximum damage when time does not permit demolition by other means. Powder charges, fragmentation grenades, or incendiary grenades may be used. Incendiary grenades usually are most effective if destruction of small parts and wiring is desired.

e. Dispose. Bury or scatter destroyed parts or throw them into nearby waterways. This is particularly important if a number of parts have not been completely destroyed.

APPENDIX A

REFERENCES

Following is a list of references available to the operator and organizational repairman of Generator, Signal AN/URM-103.

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	U. S. Army Equipment Index of Modification Work Orders.
SB 38-100	Preservation, Packaging, and Packing Materials, Supplies and Equipment Used by the Army.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 38-750	Army Equipment Record Procedures.

APPENDIX B

BASIC ISSUE ITEMS

Section I. INTRODUCTION

B-1. Scope

This appendix lists items comprising an operable equipment and those required for installation, operation, or operator's maintenance for Generator, Signal AN/URM-103.

B-2. Explanation of Columns

The following is a list of explanations of columns in section II.

a. Source, Maintenance, and Recoverability Codes (SMR) Column.

(1) *Source code (S).* The selection status and source for the listed item is the first code indicated in this column. The source codes used and their explanations are:

Code	Explanation
P	Applies to repair parts that are stocked in or supplied from GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.
X2	Applies to repair parts that are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.
G	Applies to major assemblies that are procured with PEMA funds for initial issue only to be used as exchange assemblies at DSU and GSU category. These assemblies will not be stocked above DSU and GSU category or returned to depot supply category.

(2) *Maintenance code (M).* The lowest category of maintenance authorized to install the item is indicated by the second code in the column. The maintenance category code and its explanation is:

Code	Explanation
C	Operator/Crew

(3) *Recoverability code (R).* Not used.

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

b. Federal Stock Number Column. This column indicates the Federal stock number for the item.

c. Description Column. This column includes the Federal item name and any additional description of the item which may be required. A part number or other reference number is followed by the applicable five-digit Federal Supply Code for Manufacturers. Usable on code column is not used.

d. Unit of Measure Column. The unit used as a basis of measure (e.g., ea, pr, ft, yd, etc.) is given in this column.

e. Quantity Incorporated in Unit Column. The total quantity of the item used in the equipment is given in this column.

f. Quantity Furnished with Equipment Column. This column lists the quantity of the item supplied for initial operation of the equipment and/or the quantities authorized to be kept on hand by the operator for maintenance of the equipment.

g. Illustrations Column.

(1) *Figure number (a).* The number of the illustration on which the item is shown is indicated in this column.

(2) *Item No. or reference designation (b).* The reference designation and/or item

number callout used to reference the item on the illustration appears in this column.

B-3. Federal Supply Codes

This paragraph lists the Federal supply code with the associated manufacturer's name.

Code	Manufacturer
08108	Lamp Industry for use with Industry Designations and Abbreviations for lamps
81349	Military Specifications
96906	Military Standards

SECTION II BASIC ISSUE ITEMS

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code — USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS (a) FIG. NO.	(7) ILLUSTRATIONS (b) ITEM NO. OR REFERENCE DESIGNATION
	6625-868-8352	GENERATOR, SIGNAL AN/URM-103 (This item is nonexpendable)				1-1	
		TECHNICAL MANUAL TM 11-6625-586-12	ea	1			
		Requisition through pinpoint account number if assigned; otherwise through nearest Adjutant General facility.					
		A quantity of one technical manual is packed with each equipment. Where a valid need exists, additional copies may be requisitioned and kept on hand.					
P-C	6625-935-5228	CABLE ASSEMBLY, RADIOFREQUENCY CG-530G/U (4 ft)	ea	1	1	1-1	
P-C	5995-985-7609	CABLE ASSEMBLY, RADIOFREQUENCY CG-546C/U (4 ft)	ea	1	1	1-1	
X2-C	6625-881-0583	CASE, SIGNAL GENERATOR CY-4695/URM-103	ea	1	1	1-1	
P-C	5920-284-9220	FUSE, CARTRIDGE: F02B250V1A; 81349	ea	2	5	1-1	F1, F2
G-C	6625-868-8362	GENERATOR, SIGNAL SG-297/U (This item is nonexpendable)	ea	1		1-1	
P-C	6240-223-9100	LAMP, GLOW: NE51; 08108	ea	1	1	1-1	DS2
P-C	6240-880-8699	LAMP, INCANDESCENT: 1869; 08108	ea	1	1	1-1	DS1
P-C	6240-155-7836	LAMP, INCANDESCENT: MS25237-327T; 96906	ea	2	1	1-1	DS3, DS4
P-C	6240-155-8707	LAMP, INCANDESCENT: 1819; 08108	ea	1	1	1-1	DS5
P-C	5915-782-4967	NETWORK, IMPEDANCE MATCHING CN-901/U	ea	1	1	1-1	
P-C	5915-782-4968	NETWORK, IMPEDANCE MATCHING CN-902/U	ea	1	1	1-1	
P-C	5915-782-4969	NETWORK, IMPEDANCE MATCHING CN-900/U	ea	1	1	1-1	
		NO ACCESSORIES, TOOLS, OR TEST EQUIPMENT ARE TO BE ISSUED WITH THE EQUIPMENT					
		NO BASIC ISSUE ITEMS ARE MOUNTED IN OR ON THE EQUIPMENT					

APPENDIX C
MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Generator, Signal AN/URM-103. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be ized. This does not include setting the frequency

C-2. Maintenance Functions

Maintenance functions will be limited to and defined as follows:

a. INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

b. TEST. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc. This is accomplished with external test equipment and does not include operation of the equipment and operator type tests using internal meters or indicating devices.

c. SERVICE. To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. If it is desired that elements, such as painting and lubricating, be defined separately, they may be so listed.

d. ADJUST. To rectify to the extent necessary to bring into proper operating range.

e. ALIGN. To adjust two or more components or assemblies of an electrical or mechanical system so that their functions are properly synchronized. This does not include setting the frequency control knob of radio receivers or transmitters to the desired frequency.

f. CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

g. INSTALL. To set up for use in an operational environment such as an encampment, site, or vehicle.

h. REPLACE. To replace unserviceable items with serviceable like items.

i. REPAIR. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.

j. OVERHAUL. Normally, the highest degree of maintenance performed by the Army in order to minimize time work in process is consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item to like new, zero mileage, or zero hour condition.

k. REBUILD. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at the depot maintenance category. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

l. SYMBOLS. The uppercase letter placed in the appropriate column indicates the lowest level at which that particular maintenance function is to be performed.

C-3. Explanation of Format

a. Column 1, group number. Not applicable.

b. Column 2, functional group. Column 2 lists the noun names of components, assemblies, subassemblies and modules on which maintenance is authorized.

c. Column 3, maintenance functions. Column 3 lists the maintenance category at which performance of the specific maintenance function is autho-

rized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code	*Maintenance Category*
C	Operator/Crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

d. Column 4, tools and test equipment. Column 4 specifies, by code, those tools and test equipment required to perform the designated function. The numbers appearing in this column refer to specific tools and test equipment which are identified in Table I.

e. Column 5, Remarks. Self-explanatory.

C-4. Explanation of Format of Table I, Tool and Test Equipment Requirements

The column in Table I, Tool and Test Equipment Requirements are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the tools and equipment column of the Maintenance Allocation Chart. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number of the specific tool or test equipment.

e. Tool Number. Not used.

TABLE I. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL AND TEST EQUIPMENT REQUIREMENTS				
TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE AN/URM-103 (continued)	FEDERAL STOCK NUMBER	TOOL NUMBER
1	H,D	COUNTER, ELECTRONIC, DIGITAL READOUT AN/USM-207	6625-911-6368	
2	H,D	GENERATOR, SIGNAL AN/URM-127	6625-783-5965	
3	H,D	MULTIMETER ME-26/U	6625-360-2493	
4	H,D	MULTIMETER TS-352/U	6625-242-5023	
5	H,D	OSCILLOSCOPE AN/USM-281	6625-053-3112	
6	H,D	TEST SET, TRANSISTOR TS-1836/U	6625-893-2628	
7	H,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-605-0079	
8	D	GENERATOR, SIGNAL AN/USM-44	6625-669-4031	
9	D	RADIO INTERFERENCE MEASURING SET AN/URM-85	6625-776-0595	
10	D	VOLTMETER, ELECTRONIC AN/URM-145	6625-973-3986	
11	D	ATTENUATOR, CALIBRATOR PRD MODEL 915B		
12	D	DISTORTION ANALYZER HP MODEL 334A		
13	D	FM DEVIATION METER MARCONI TF 791D		
14	D	IMPEDANCE BRIDGE GR 1650B		
15	D	MIXER PRD UHF-600		
16	O	TOOLS & TEST EQUIPMENT AVAILABLE TO THE ORGANIZATIONAL REPAIRMAN BECAUSE OF HIS ASSIGNED MISSION		

SECTION II. MAINTENANCE ALLOCATION CHART

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	GENERATOR, SIGNAL AN/URM-103	O												
			O										16	
			H										1 thru 6	
				O									16	
						H							1 thru 6	
							H						1 thru 6	
										O			16	
										H			7	
											D		1 thru 15	
	GENERATOR, SIGNAL SG-297( )/U									H				
											D			
	CABLE ASSEMBLY, RADIO FREQUENCY								O					
										H				
	IMPEDANCE MATCHING NETWORK								O					

APPENDIX D

ORGANIZATIONAL MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix lists repair parts and special tools required for the performance of organizational maintenance of the AN/URM-103.

D-2. General

This repair parts and special tools list is divided into the following sections:

a. Prescribed Load Allowance (PLA) — Section II. A composite listing of the repair parts, special tools, test and support equipment having quantitative allowances for initial stockage at the organizational level.

b. Repair Parts — Section III. A list of repair parts authorized for the performance of maintenance at the organizational level.

c. Special Tools, Test and Support Equipment — Section IV. Not applicable.

NOTE

All indexes noted below are cross-referenced to index numbers. The index numbers appear in ascending sequence in column 1 of the repair parts list. The index number for the particular item will be the same for the item in all sections of this appendix.

d. Federal Stock Number Cross-Reference to Index Number — Section V. A list of Federal stock numbers in ascending numerical sequence cross-referenced to index (sequence) numbers.

e. Figure and Item Number Cross-Reference to Index Number — Section VI. Not applicable.

f. Reference Designation Cross-Reference to Index Number — Section VII. A list of reference designations (or item numbers) to index numbers.

D-3. Explanation of Columns

The following provides an explanation of columns in the tabular lists:

a. Source, Maintenance, and Recoverability Codes (SMR), Column 1.

(1) Source code indicates the selection status and source for the listed item. Source codes are —

Code	*Explanation*
P —	Repair parts which are stocked in or supplied from the GSA/DSA, or Army supply system and authorized for use at indicated maintenance categories.
P2 —	Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
P9 —	Assigned to items which are NSA design controlled: unique repair parts, special tools, test, measuring and diagnostic equipment, which are stocked and supplied by the Army COMSEC logistic system, and which are not subject to the provisions of AR 380-41.
P10 —	Assigned to items which are NSA design controlled: special tools, test, measuring and diagnostic equipment for COMSEC support, which are accountable under the provisions of AR 380-41, and which are stocked and supplied by the Army COMSEC logistic system.
M —	Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.
A —	Assemblies which are not procured or stocked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.
X —	Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.

Code	*Explanation*
X1 —	Repair parts which are not procured or stocked. The requirement for such items will be filled by use of the next higher assembly or component.
X2 —	Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain same through cannibalization. Where such repair parts are not obtainable through cannibalization, requirements will be requisitioned, with accompanying justification, through normal supply channels.
G —	Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above DS and GS level or returned to depot supply level.

(2) Maintenance code indicates the lowest category of maintenance authorized to install the listed item. The maintenance level codes are —

Code	*Explanation*
C	Operator/crew
O	Organizational maintenance

(3) Recoverability code indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are —

Code	*Explanation*
R —	Repair parts and assemblies that are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.
S —	Repair parts and assemblies which are economically repairable at DSU and GSU activities which normally are furnished by supply on an exchange basis. When items are determined by a GSU to be uneconomically repairable, they will be evacuated to a depot for evaluation and analysis before final disposition.
T —	High-dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance activities.
U —	Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high-dollar value reusable casings or castings.

b. Federal Stock Number, Column 2. This column indicates the Federal stock number assigned to the item and will be used for requestioning purposes.

c. Description, Column 3. This column indicates the Federal item name and any additional description of the item required. Apart number of other reference number is followed by the applicable five-digit Federal supply code for manufacturers in parentheses.

d. Unit of Measure, Column 4. A two-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit, Column 5. This column indicates the quantity of the item used in AN/URM-103. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.).

f. 15-Day Organizational Maintenance Allowances, Column 3 of Section II and Column 6 of Section III and IV.

(1) The allowance columns are divided into four subcolumns. Indicated in each subcolumn opposite the first appearance of each item is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have the letters "REF" in the allowance columns. Items authorized for use as required but not for initial stockage are identified with an asterisk in the allowance column.

(2) The quantitative allowances for organizational level of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the density column applicable to the number of items supported to obtain the total quantity of repair parts authorized.

(3) Organizational units providing maintenance for more than 100 of these equipments shall determine the total quantity of parts required by converting the equipment quantity to a decimal factor by placing a decimal point before the next to last digit of the number to indicate hundredths, and multiplying the decimal factor by the parts quantity authorized in the 51-100 allowance column. Example, authorized allowance for 51-100 equipments is 40; for 150 equipments multiply 40 by 1.50 or 60 parts required.

(4) Subsequent changes to allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-ME-NMP-TE, Fort Monmouth, N. J. 07703, for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

g. Illustration, Column 7. Not applicable.

(1) *Figure number, column 7a* Not applicable.

(2) *Item number, column 7b.* Not applicable.

D-4. Special Information

Special parts mortality is computed from failure rates derived from experience factors with the individual parts in a variety of equipments. Variations in the specific application and periods of use of electronics equipment, the fragility of electronic piece parts, plus intangible material and quantity factors intrinsic to the manufacture of electronic parts, do not permit mortality to be based on hours of end item use. However, long periods of continuous use under adverse conditions are likely to increase repair parts mortality.

D-5. Location of Repair Parts

a. This manual contains two cross-reference indexes (sects. V and VII) to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), figure number, or reference designation is known. The first column in each cross-reference index is prepared, as applicable, in numerical or alphanumerical sequence. The last column of each cross-reference index lists the index number assigned to the part.

b. Refer to the appropriate cross-reference index (para D-2*d*, and *e*) and note the index number in the last column; then refer to the repair parts list to locate the index number which is listed in ascending order in column 1 of the repair parts list.

D-6. Federal Supply Code for Manufacturers

Code	*Manufacturer*
80063	Army Electronics Command
81349	Military Specifications
96906	Military Standards

SECTION II PRESCRIBED LOAD ALLOWANCE (AN/URM-103)

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
		(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
5355-556-0145	KNOB: MS91528-1K2B; (96906)	*	*	2	2
6240-155-8707	LAMP, INCANDESCENT: MS25231-1819; (96906)	*	*	2	2
6240-223-9100	LAMP, INCANDESCENT: NE51; (81349)	*	*	2	2
	FUSE, CARTRIDGE: F02-250V120A; (81349)	2	2	3	6

SECTION III REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (AN/URM-103)

(1) SMR CODE / INDEX NO.	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION / Reference Number & Mfr Code / USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW (a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(7) ILLUSTRATIONS (a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
A001	6625-868-8352	GENERATOR, SIGNAL AN/URM-103: SMD630500; (80063) (This item is nonexpendable)	ea	1						
P-C-- A002	5905-986-7609	CABLE ASSEMBLY, RF CG-546/U: SMC630526; (80063)	ea	1	*	*	*	*		W1
P-0-- A299		FUSE, CARTRIDGE: F02-250V120A; (81349)	ea	4	2	2	3	6		A1F1
P-0-- A300		FUSE, CARTRIDGE: SAME AS A299								A1F2
P-0-- A301		FUSE, CARTRIDGE: SAME AS A299	ea	ref						A1F3
P-0-- A302		FUSE, CARTRIDGE: SAME AS A299	ea	ref						A1F4
P-0-- A424	5355-556-0145	KNOB: MS91528-1K2B; (96906)	ea	5	*	*	2	2		A1MP22
P-0-- A425	5355-556-0145	KNOB: SAME AS A424	ea	ref						A1MP23
P-0-- A426	5355-556-0145	KNOB: SAME AS A424	ea	ref						A1MP24
P-0-- A427	5355-556-0145	KNOB: SAME AS A424	ea	ref						A1MP25
P-0-- A428	5355-556-0145	KNOB: SAME AS A424	ea	ref						A1MP26
P-0-- A429	5355-543-0789	KNOB: MS91528-1N2B; (96906)	ea	2	*	*	*	*		A1MP27
P-0-- A430	5355-543-0789	KNOB: SAME AS A429	ea	ref						A1MP28
P-0-- A431	5355-559-8842	KNOB: MS91528-1N1B; (96906)	ea	1	*	*	*	*		A1MP29
P-0-- A432	6240-223-9100	LAMP, INCANDESCENT: NE51; (81349)	ea	1	*	*	2	2		A1DS2
P-0-- A433	6240-155-8707	LAMP, INCANDESCENT: MS25231-1819; (96906)	ea	1	*	*	2	2		A1DS5

SECTION V INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE

TO INDEX NUMBER AN/URM-103

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
5355-543-0789	A429				
5355-556-0145	A424				
5355-559-8942	A431				
5995-985-7609	A002				
6240-155-87071	A433				
6240-223-9100	A432				
6625-868-8352	A001				
REF NUMBER	INDEX NUMBER				
F02-250V120A	A299				

SECTION VII INDEX-REFERENCE DESIGNATION CROSS REFERENCE TO INDEX NUMBER AN/URM-103

REFERENCE DESIGNATION	INDEX NO.	REFERENCE DESIGNATION	INDEX NO.	REFERENCE DESIGNATION	INDEX NO.
A1DS2	A432				
A1DS5	A433				
A1F1	A299				
A1F2	A300				
A1F3	A301				
A1F4	A302				
A1MP22	A424				
A1MP23	A425				
A1MP24	A426				
A1MP25	A427				
A1MP26	A428				
A1MP27	A429				
A1MP28	A430				
A1MP29	A431				
W1	A002				

TM 11-6625-586-12

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

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